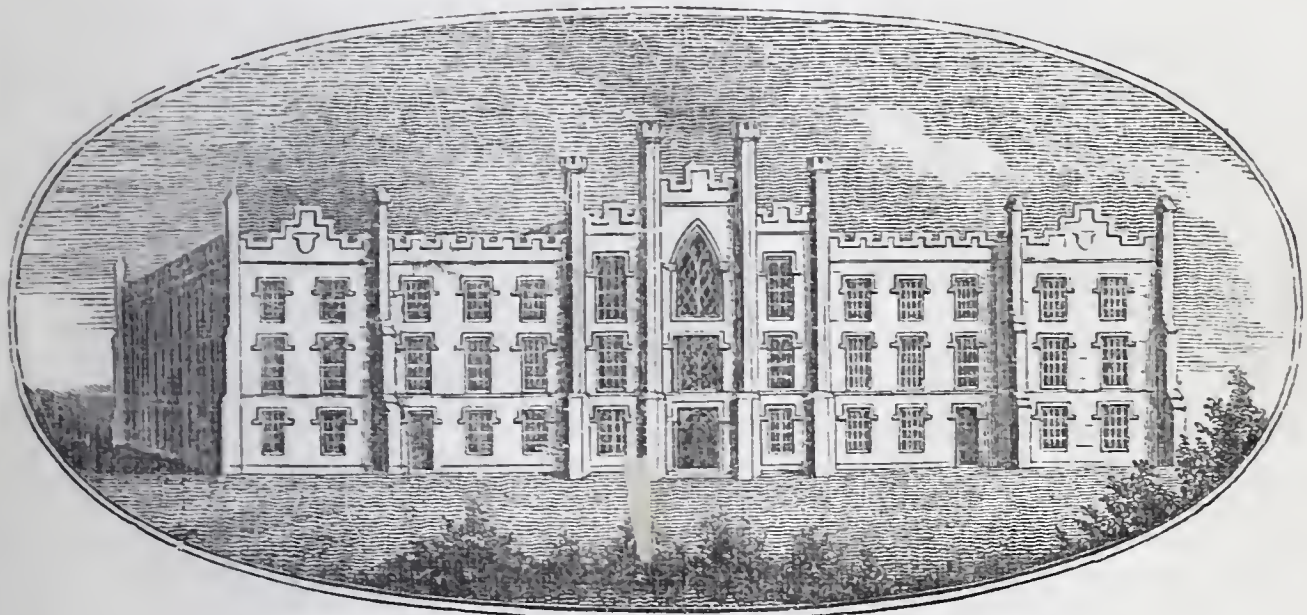


THIRTY-THIRD  
ANNUAL REPORT OF THE MANAGERS  
OF THE  
NEW-YORK 3  
INSTITUTION FOR THE BLIND,  
TO THE  
LEGISLATURE OF THE STATE,  
For the Year 1868.



LUX ORITUR.

“ And I will bring the blind by a way that they knew not ; I will lead them in paths that they have not known ; I will make darkness light before them.”—ISAIAH 42:16.

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NEW-YORK :  
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1869.

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## Board of Managers.

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AUGUSTUS SCHELL,  
ROBERT S. HONE,  
DANIEL H. TOMPKINS,  
D. LYDIG SUYDAM,  
NATHANIEL P. HOSACK,  
JOSEPH GRAFTON,  
THEO. BAILEY MYERS,  
JOHN TREAT IRVING,  
ALFRED SCHERMERHORN,  
JAMES M. McLEAN,  
ALEXANDER VAN RENSSELAER,  
SMITH CLIFT,  
CHARLES B. HOFFMAN,  
WILLIAM WHITEWRIGHT, JR.,  
WILLIAM C. SCHERMERHORN,  
CHARLES DE RHAM,  
FRANCIS A. STOUT,  
DANIEL BUTTERFIELD,  
NEWBOLD EDGAR,  
WM. B. HOFFMAN.



## Officers of the Board.

AUGUSTUS SCHELL.....*President.*  
ROBERT S. HONE.....*Vice-President.*  
T. BAILEY MYERS.....*Recording Secretary.*  
WM. C. SCHERMERHORN.. *Corresponding Secretary.*  
JOSEPH GRAFTON.....*Treasurer.*

## Standing Committees

FOR

1869.

*Committee on Finance.*

DANIEL H. TOMPKINS,                      JAMES M. McLEAN,  
WM. WHITEWRIGHT, JR.

*Committee on Supplies, Repairs and Improvements.*

NATHANIEL P. HOSACK,  
SMITH CLIFT,

CHARLES DE RHAM,  
ALFRED SCHERMERHORN,  
ALEX. VAN RENSSELAER.

*Committee on Instruction and Music.*

JOHN TREAT IRVING, CHARLES B. HOFFMAN,  
WM. C. SCHERMERHORN, WM. B. HOFFMAN.

*Committee on Manufactures.*

D. LYDIG SUYDAM,  
FRANCIS A. STOUT,  
DANIEL BUTTERFIELD,  
NEWBOLD EDGAR.

The President shall be *ex-officio* member of all standing committees.

The Vice-President and Treasurer shall be *ex-officio* members of the Committee on Finance. (*By Laws.*)

## Officers of the Institution.

---

WILLIAM B. WAIT.....*Superintendent.*  
 JAMES W. G. CLEMENTS, M. D.....*Attending Physician.*  
 EDWARD L. BEADLE, M. D.....*Consulting Physician.*

*Consulting Surgeons.*

JOHN H. HINTON, M. D, ABRAHAM DUBOIS, M. D.

---

### *Teachers in the Academical Department.*

STEPHEN BARCOCK,	MISS MATILDA M. HUTCHINS,
CHARLES S. PEPPER,	MISS MARY KNOWLES,
MISS MARY E. CHURCH,	MISS ANN COX.

---

### *Teachers in the Musical Department.*

THEODORE THOMAS, *Director.*

FRED'K. HENSSLER.....*Professor of Vocal Music.*  
 CHARLES A. FOEPPLE.....*Professor of Instrumental Music.*  
 MISS H. AMELIA WRIGHT....*Piano.*  
 MISS CATHERINE CONNELL....*Piano.*  
 MISS L. BANKHEAD.....*Piano.*

---

### *Teachers in the Mechanical Department.*

HUGH F. DARRAGH.....*Foreman in the Mat and Broom Shop.*  
 WARREN WATERBURY.....*Foreman in the Mattress Shop.*  
 MISS ANNA SHERIDAN.....*Upholstress.*

---

### *Sewing Department.*

(Under the direction of Assistant Matron.)

MISS RACHEL A. BISHOP, *Teacher.*

*In charge of the Door Register and Passes.*

MISS FANNIE E. WHEELER.

---

*Guides.*

MISS ALICE HATCHMAN,

MISS HANNAH RODNEY.

---

*House Department.*JOHN ALLYN, *Steward.\***Matron.**Assistant Matron.*

MRS. MARY A. HAYES.

MISS LIBBIE CARPENTER.

---

*Hospital Nurse.*

MISS E. M. CLEALAN and an Assistant.

*Boys Nurse.**Girls Nurse*

MISS ELIZA MAHONY.

MISS RACHEL BISHOP.

\* Mr. Allyn is also Agent of the Manufacturing Department.



# REPORT.

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*To the Honorable the Legislature of the State of New-York.*

In compliance with an Act of the Legislature, passed April 1, 1836, the Managers of the New-York Institution for the Blind, present the following Report of their proceedings, and of their disposition of all moneys received by them from the State, for the year ending Dec. 31, 1868.

They also annex the Report of the Superintendent to them. This gives a detail of the management of the several departments of the Institution, and shows a degree of progress made by the pupils in their different pursuits, which is highly satisfactory.

The annexed report of the attending Physician, shows that the health of the pupils has been unusually good, but two deaths having occurred during the past year.

The Treasurer's Report, which is also annexed, shows that the financial condition of the Institution is highly prosperous.

By careful and judicious management, the large indebtedness under which it has been laboring for years, has been extinguished and the Institution is now entirely free from debt of any kind.

The Managers take pleasure in stating, that the appropriations from the State and Counties added to the income of the Institution, have so nearly met the expense of supporting, clothing, and educating their pupils for the past year, that there is merely the trifling deficiency of \$54.60.

The Institution has had under its charge for the past year the average number of  $136\frac{22}{100}$  pupils.

Of this number there were

From the State of New-York,	124 $\frac{21}{100}$
“ the State of New Jersey,	11 $\frac{32}{100}$
Pay Pupils,	$\frac{69}{100}$
Total,	<u>136<math>\frac{22}{100}</math></u>

The proportion of the expense of New-York State pupils, is as follows:

For the maintenance, education and clothing of $124\frac{21}{100}$ New-York State pupils, for the year 1868, . . . . .	\$44,218 45
Proportion of loss in Manufacturing Depart- ment, . . . . .	268 29
	<hr/> \$44,486 74
Amount received from the State of New-York, for $124\frac{21}{100}$ State pupils, - - -	\$37,262 14
Received and due from the Counties from which such pupils were received, - -	7,170 00
	<hr/> \$44,432 14
Showing a deficiency for the year 1868, of -	<hr/> \$54 60

The following statement, shows the expenditure of the Institution for the maintenance, education, and clothing for the year 1868, of  $136\frac{22}{100}$  pupils.

Supplies and clothing, - - - - -	\$27,119 00
Salaries and wages, - - - - -	11,471 55
Gas, - - - - -	898 46
Croton Water, - - - - -	82 75
Travelling, - - - - -	505 15
Furniture and fixtures, - - - - -	3,130 76
Repairs and alterations, - - - - -	1,052 69
Petty accounts, - - - - -	1,917 69
Music, - - - - -	50 00
Interest, - - - - -	298 50
Insurance, - - - - -	277 50
Taxes, - - - - -	957 60
Loss in Manufacturing Department, - - - - -	294 06
Fairs and Exhibitions, (Anniversary) - - - - -	64 31
Total, - - - - -	<hr/> \$48,120 02

The proportion of which for $124\frac{21}{100}$ New-York State pupils, is as stated, - - - - -	\$44,486 74
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The Legacies and Donations, forming the Donation Fund, have by direction of the Board of Managers been invested in funds of the United States.

They are mentioned in the annexed list by the names of the donors.



The interest which is derived from this fund is applied to the general purposes of the Institution.

### INVESTMENTS.

SETH GROSVENOR, - - - - -	\$10,000 00
FRISSELL FUND, - - - - -	2,000 00
WM. E. SAUNDERS, - - - - -	725 84
THOMAS EDDY, - - - - -	1,000 00
ANSON G. PHELPS, - - - - -	480 50
S. V. SICKLES, - - - - -	2,384 90
ROBERT GOODHUE, - - - - -	1,000 00
MESSRS. CHAUNCY & HENRY ROSE, - - -	5,000 00
S. V. ALBRO, - - - - -	428 57
JOHN PENFOLD, - - - - -	500 00
MADAM JUMEL, - - - - -	5,000 00
T. GARNER, - - - - -	1,400 00
(FROM SALE OF REAL ESTATE,) - - - - -	80 19
	<hr/>
	\$30,000 00
	<hr/>

Commencing in the year 1832, with no resources except what could be collected from the benevolent, this charity has gradually become one of the most useful and important in the State. It has supplied the means of education and livelihood to a large portion of the community, who, from the peculiar nature of their affliction, were utterly helpless and dependant for protection and support, upon relatives and connections whose own straitened circumstances rendered such support an oppressive burden.

The Legislature of the State throughout the whole of that time has lent its generous aid, and has seemed fully alive to the importance of this benevolent work.

But that it may be fully understood that the Managers of the Institution have been energetic in their efforts to co-operate with the State, it is but just to mention, that from the date of the Charter of this Institution, in the year 1832, up to the present time, the Institution has contributed a larger amount towards the support of the pupils committed to its charge by the State, than the State itself has done.

It will be seen by the annexed statement, that from 1832 to and including 1868, the number of these pupils educated, supported, and clothed has averaged 112.33 per annum. The cost of which has amounted in the whole to \$1,875,051.62. Of this sum but \$752,917.57 has been contributed by the State; the balance has been derived from legacies, donations and funds collected by the efforts of those, who from time to time had charge of the Institution, and who have devoted themselves with the most earnest zeal to the promotion of its charitable object.

AUGUSTUS SCHELL,

*President of the New-York Institution for the Blind.*

T. BAILEY MYERS, *Secretary.*

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*City and County of New-York, ss. :*

*Augustus Schell*, of said city, being duly sworn, saith, that he is the President of the New-York Institution for the Blind, and that the above Report signed by him, is true to the best of his knowledge and belief.

AUGUSTUS SCHELL,

*President of the New-York Institution for the Blind.*

Sworn to before me, this 6th }  
day of February, 1869. }

G. R. HART,

*Notary Public, New-York City and County.*

*Statement of Expenditures and Receipts from the establishment of the  
New-York Institution for the Blind, to January 1st, 1869.*

Total expenditures from 1832 to 1868, inclusive,	
for all purposes, . . . . .	\$1,980,827 83
Average attendance per year, New-York	
State Pupils, . . . . .	112.33
New Jersey and Pay Pupils, . . . . .	6.33
Proportion of New-York Pupils, . . . . .	94.66 per cent.
Amount expended for all purposes, in 37 years, for	
6.33 New Jersey and Pay Pupils, . . . . .	105,776 21
<hr/>	
Amount expended for all purposes, in 37 years, for	
New-York State Pupils, . . . . .	\$1,875,051 62
Total amount received from New-York State since	
1832, . . . . .	752,917 57
<hr/>	
Amount of moneys expended by the Institution, for	
all purposes, since 1832, for New-York State	
Pupils, over and above the amounts appropriated	
by the State, . . . . .	\$1,122,134 05
Average amount paid yearly by New-York State,	
for all purposes, since 1832, . . . . .	20,349 12
Average amount per pupil paid yearly, by New-	
York State, . . . . .	181 15
Average amount of Institution resources paid per	
year, for New-York State Pupils, since 1832, . . . . .	30,327 94
Average amount per pupil, paid yearly by the Insti-	
tution, . . . . .	269.99
Proportion of the whole expense borne by the State	
of New-York for its Blind, under the care of the	
Institution since 1832, . . . . .	40 per cent.
Proportion borne by the Institution, . . . . .	60 per cent.



THE NEW-YORK INSTITUTION FOR THE BLIND IN ACCOUNT WITH JOSEPH GRAFTON, TREASURER.

Dr.

1868. December 31.

To Cash paid on Account of Supplies.....	\$23,324 32
" " Salaries and Wages.....	12,899 58
" " Clothing.....	4,682 19
" " Furniture and Fixtures.....	3,054 38
" " Repairs and Alterations.....	1,007 63
" " Traveling Expenses.....	505 15
" " Croton Water.....	165 50
" " Gas.....	1,026 84
" " Petty Account.....	2,349 83
" " Fairs and Exhibitions.....	209 31
" " Fire Insurance.....	277 50
" " Raw Material for Manufacturing.....	5,083 06
" " Interest.....	298 50
" " Taxes and Assessments.....	4,999 28
" " Investments.....	12,083 25
" " Loans.....	6,044 16
" " Balance to new Account.....	5,801 88

\$83,812 36

Examined and found correct, }  
January 9, 1869.

DANIEL H. TOMPKINS, } Finance Committee.  
W. WHITEWRIGHT, Jr., }  
J. M. McLEAN,

Cr.

1868. January 1.

By Balance from old Account.....	\$422 45
December 31.	
By Cash received from Legacy of Mrs. Steers.....	34 66
" " Legacy of T. Garner.....	1,410 00
" " Fairs and Exhibitions.....	145 00
" " Tuition.....	209 40
" " State of New-York.....	61,422 21
" " State of New Jersey.....	3,000 00
" " Counties—Clothing Account, viz.: Albany County..... \$420 00 " " Orange County..... \$120 00 " " Oswego "..... 30 00 " " Rensselaer "..... 90 00 " " Rockland "..... 30 00 " " Schenectady "..... 30 00 " " Seneca "..... 121 79 " " Schuyler "..... 52 50 " " Suffolk "..... 120 00 " " Sullivan "..... 90 00 " " Ulster "..... 30 00 " " Warren "..... 30 00 " " Washington "..... 30 00	
By Cash received from Sales of Manufactures.....	7,712 12
" " " Sundries.....	6,293 78
" " " Rent of Mt. Hope Farm.....	499 61
" " " Interest.....	1,100 00
	1,653 13

\$83,812 36

By Balance to new Account..... \$5,801 88

JOSEPH GRAFTON, Treasurer.

## ATTENDING PHYSICIAN'S REPORT.

NEW-YORK, *January*, 1869.

*To the Board of Managers of the New-York Institution for the Blind.*

*Gentlemen*,—I have nothing of special interest to report in connection with my department for the past year.

The almost uninterrupted health of the pupils has maintained the policy and judgment of the Superintendent in his efforts to improve the physique of the inmates.

There have been two deaths—James O'Brien, in April, from chronic pleurisy, terminating in abscess (Empyema); the other, Edward Ross, in October last, from tubucular consumption.

All of which is respectfully submitted.

JAS. W. G. CLEMENTS,

*Attending Physician.*

## SUPERINTENDENT'S REPORT.

*To the Board of Managers:*

<i>Gentlemen</i> ,—At the close of the year 1867, the number of pupils in this Institution was.....	137
Received during the year.....	43
Number instructed during the year.....	180
Left by expiration of term and otherwise.....	53
Number of pupils, Dec. 31st, 1868.....	127

The three departments of instruction, literary, musical and industrial, have been carried on as usual; and the work of the year, as shown in the discipline and standing of the school, has been highly satisfactory.

## LITERARY DEPARTMENT.

The following course of study, through which each pupil must progress from year to year, shows the nature of the work undertaken in this department:

## PRIMARY.

FIRST TERM.	SECOND TERM.
Spelling — Parker & Watson's — 20 words per day, with sounds of the letters, dictation and composition exercises, to page 33.	Spelling, as before, to page 58.
Reading.	Reading.
Arithmetic — Stoddard's Primary, to page 38.	Arithmetic—Stoddard's Primary, completed and Reviewed.
Number—3 steps, with objects.	Number—through 6 steps, with objects.
Size—4 steps, with objects.	Form, Weight and Place. Object Lessons.
Moral Lessons—Cowdery.	Moral Lessons—Cowdery.

## INTERMEDIATE.

FIRST TERM.	SECOND TERM.
Spelling—to page 73.	Spelling—to page 98.
Reading.	Reading.
Arithmetic—Stoddard's Rudiments, to page 34.	Arithmetic—Stoddard's Rudiments, to page 59.
Geography—National Series, No. 1, complete.	Geography—Review, with maps.
History of England.	History of England.
Moral and Object Lessons.	Moral and Object Lessons.

## SUB-JUNIOR.

FIRST TERM.	SECOND TERM.
Reading.	Reading.
Spelling—to page 113.	Spelling—to page 138.
Arithmetic—Stoddard's Rudiments, to page 111.	Arithmetic—Stoddard's, completed and reviewed.
Geography—National Series, No. 2.	Geography—National Series, No. 2, reviewed, with maps.
American History—Goodrich's.	History—Goodrich's, completed and reviewed.
Moral and Object Lessons, including human body and animals.	Object and Moral Lessons.

## JUNIOR.

FIRST TERM.	SECOND TERM.
Writing.	Writing.
Arithmetic—Stoddard's Intellectual, to page 114.	Arithmetic — Stoddard's Intellectual, completed and reviewed.
Spelling—completed.	Spelling and Analysis.
Geography—National Series, No. 3.	Geography—National Series, No. 3, reviewed, with maps.
Grammar—Clark's First, to page 73.	Grammar—Clark's First, completed and reviewed.
History—Worcester's Ancient.	History—Worcester's Ancient, and Modern France.



## SUB-SENIOR.

## FIRST TERM.

Arithmetic—Stoddard's Practical, to page 164.  
 Grammar—Brown's, to page 124, with Clark's.  
 History—Worcester's England.  
 Physiology and Hygiene—Jarvis & Beecher's.  
 Algebra—Davies' Elementary, to page 72.  
 Geography—National Series, No. 4, with Tangible Chirography.

## SECOND TERM.

Arithmetic—Stoddard's Practical, completed and reviewed.  
 Grammar—Brown's, to page 241.  
 History—Worcester's English and American.  
 Physiology and Hygiene.  
 Algebra—Davies' Elementary, to page 173.  
 Geography—National Series, No. 4, with maps.

## SENIOR—FIRST YEAR.

## FIRST TERM.

Algebra—Davies' Elementary, to page 217.  
 Geometry—Davies' Legendre, Book First.  
 Logic—Davies'.  
 Natural Philosophy—Gray's, to page 60.  
 Science of Government—Young's, to page 100.  
 Mental Philosophy—Wayland's, ten chapters.

## SECOND TERM.

Algebra—Davies' Elementary, completed and reviewed.  
 Geometry—Davies' Legendre, Second and Third Books.  
 Geology—St. John's.  
 Natural Philosophy—Gray's, to page 119.  
 Science of Government—Young's, completed and reviewed.  
 Mental Philosophy—Wayland's, completed.

## SENIOR—SECOND YEAR.

## FIRST TERM.

Natural Philosophy—Gray's, to page 119.  
 Geometry—Davies', Books First, Second & Third, reviewed, and Fourth Book.  
 Arithmetic—Stoddard's University.  
 Chemistry—Silliman's.  
 Moral Philosophy—Wayland's, to page 88, with general review.

## SECOND TERM.

Natural Philosophy—Gray's, completed.  
 Geometry—Davies' Legendre, Fifth and Sixth Books, with review.  
 Arithmetic—Stoddard's University.  
 Chemistry—Silliman's.  
 Moral Philosophy—Wayland's, to page 188, with general review.

## MUSICAL DEPARTMENT.

Much effort has been made in this department of study during the past year. The singing of the chorus class is excellent, and we have some excellent voices receiving vocal instruction, and also, some young pupils whose attainments upon the piano are very creditable, and who continue to make encouraging progress.

The classes in music are as follows :

Elementary Singing Class,	-	-	-	-	-	-	31
Chorus Class -	-	-	-	-	-	-	70
Vocalization	-	-	-	-	-	-	10
Piano -	-	-	-	-	-	-	59
Organ	-	-	-	-	-	-	3

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### INDUSTRIAL DEPARTMENT.

The usual trades, mat, broom, mattress making, and various kinds of fancy work, have been taught during the year.

In some institutions, it is customary, in making up the accounts of this department, to charge the salaries and wages of instructors, to the general instruction or salary account, thus relieving the department of a serious charge.

Here, however, the department is charged with everything it receives, including the salaries and wages of all persons employed.

The following statement shows the results for 1868 :

MANUFACTURING DEPARTMENT IN ACCOUNT WITH THE N. Y. INSTITUTION FOR THE BLIND FOR 1868.

<i>Dr.</i>		<i>Cr.</i>
To Raw Material and Manufactured Stock on hand		
January 1st, 1868,	\$1,479 62	By Sales of Mattresses, - - - - \$3,518 28
" Fixtures - - - - -	935 00	"    "    Brooms, - - - - - 2,375 11
" Raw Material bought in 1868 - - - -	4,492 66	"    "    Mats, - - - - - 310 39
" Balance - - - - -	1,601 85	"    Bills Receivable, - - - - - 223 00
		"    Value of Raw Material and Manufactured Stock
		on hand December 31, 1868, - - - - 1,147 35
		"    Fixtures, - - - - - 935 00
	<u>\$8,509 13</u>	
To Salaries and Wages - - - - -	1,895 91	By Profit on Work - - - - - 1,601 85
		"    Balance - - - - - 294 06
	<u>\$1,895 91</u>	



## EXPENSES

The expenses of the Institution, in and for the year ending December 31st, 1868, were as follows:

Supplies on hand January 1, 1868,	-	-	\$775 66
Supplies bought during 1868,	-	-	21,354 16
			<hr/>
			\$22,129 82
Amount on hand, December 31st, 1868,	-	-	714 24
			<hr/>
Total amount for Supplies for 1868,	-	-	\$21,415 58
Gas,	-	-	898 46
Croton Water,	-	-	82 75
Traveling,	-	-	505 15
Furniture and Fixtures,	-	-	3,130 76
Repairs and Alterations,	-	-	1,052 69
Petty Accounts,	-	-	1,917 69
Music,	-	-	50 00
Interest,	-	-	298 50
Insurance,	-	-	277 50
Taxes,	-	-	957 60
Salaries and Wages, Employees,	-	-	4,325 00
Literary Teachers,	-	-	2,251 56
Music Teachers,	-	-	1,801 99
Servants' Pay Roll,	-	-	3,093 00
			<hr/>
			11,471 55
Loss Manufacturing Department,	-	-	\$294 06

## CAUSES OF BLINDNESS.

The following tables show the causes of blindness, with ages and parentage, in the cases of forty-three pupils received during the year 1868:

Congenital,	-	-	7	Opthalmia, sequel to Brain		
Opthalmia,	-	-	12	Fever,	-	4
Teething,	-	-	1	Scarlet Fever,	-	2
Hydrocephules,	-	-	2	Typhoid Fever,	-	2
Congestion of the Brain,	-	-	1	Measles,	-	2
Convulsions,	-	-	1	Small Pox,	-	2

## ACCIDENTS.

Blow of stick in the eye,	-	1	Kick of a horse,	-	1
Blow on the head,	-	1	Chip of steel in the eye,	-	1
Fall,	-	1	Railroad accident,	-	1
Blow on the eye by a ball,	-	1			

## TABLE OF AGES.

Born Blind,	-	-	7	9th year,	-	-	-	1		
1st year,	-	-	-	5	10th	"	-	-	2	
2nd	"	-	-	-	1	11th	"	-	-	1
3rd	"	-	-	-	1	12th	"	-	-	1
4th	"	-	-	-	5	14th	"	-	-	3
5th	"	-	-	-	3	15th	"	-	-	2
6th	"	-	-	-	2	17th	"	-	-	2
7th	"	-	-	-	3	21st	"	-	-	1
8th	"	-	-	-	2	22nd	"	-	-	1

## PARENTAGE.

American,	-	-	-	20	German,	-	-	-	8
Irish,	-	-	-	12	English,	-	-	-	3

## BLINDNESS OF RELATIVES. .

1 has a blind sister, | 1 has a blind brother.

# ALPHABETS

## AND

# BOOKS FOR THE BLIND.

---

DURING the past three years much attention has been given to the study of the principles and theories applicable to this subject.

Two objects have been in view.

1st. To examine and explain all the theories upon which a system of tangible writing or printing can be based, and

2d. To test the correctness and value of theories, by showing their results when reduced to practice.

The first point has been treated of in the two preceding reports, and also the second point, so far as the practical value of the various systems already in use is concerned. During the year 1868 a practical test of the new system, the features of which have been explained, has been made, and it is doubtless expected by all who have read the former reports that the subject will be completed by giving the facts regarding the new system.

I have, however, incorporated into this report all that has heretofore been said, so that instead of being spread through three reports, the subject is now presented as a whole.

Books are as necessary to the blind as to the seeing, and every reason which can be urged why there should be books cheap and plenty for all the seeing, applies with equal force with regard to books for the blind.

The necessities of the blind in this respect have been and are urgent, and great efforts have been made to supply the want. But the Institutions for the Blind in or about which these efforts have generally originated, have been so widely separated in regard to time of origin and place of location, that there has been little or



## ERRATA.

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PAGE 22.—“Compactness, cheapness, and ” should read,  
*compactness and cheapness.*

PAGE 25.—“Which have been printed,” should read,  
*have been printed.*

PAGE 30.—“Point signs, another great advantage,”  
should read, *point signs have another great ad-  
vantage.*

PAGE 40.—“Shall not exceed a given sign ” should read,  
*shall not exceed a given size.*

has not been properly ascertained by experiment.

Now, when anything is proposed to be done in behalf of any class of persons, it is evident that the capacities and necessities of the individuals in the class in question, will indicate the nature and scope of the action proposed.

So in the case of the blind, it is alone from a knowledge of the degree to which the sense of touch is possessed by them individually, that we may deduce the principles which should be applied in the construction of an alphabet for their general use.

It will now be our purpose, first, to notice those conditions and necessities of the blind, which indicate the necessary characteristics of an alphabet made for their use; and secondly, to examine the alphabets now in use with a view to determine their degree of conformity with these facts and conditions, and thus define the measure of their adaptability.

The first fact to be noticed is, that all the blind must read by touch, and hence the alphabet must be tangible or perceptible to the touch.

*Second.*—The sense of touch is not equally acute in all blind persons; the difference in this respect being great. This fact is of vital importance, for if the alphabet be such as only those having delicacy of touch can distinguish, then it is not an alphabet for the blind, but only for a preferred number of them. Hence the signs of an alphabet should be such as those in whom

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1st. To examine and explain all the theories upon which a system of tangible writing or printing can be based, and

2d. To test the correctness and value of theories, by showing their results when reduced to practice.

The first point has been treated of in the two preceding reports, and also the second point, so far as the practical value of the various systems already in use is concerned. During the year 1868 a practical test of the new system, the features of which have been explained, has been made, and it is doubtless expected by all who have read the former reports that the subject will be completed by giving the facts regarding the new system.

I have, however, incorporated into this report all that has heretofore been said, so that instead of being spread through three reports, the subject is now presented as a whole.

Books are as necessary to the blind as to the seeing, and every reason which can be urged why there should be books cheap and plenty for all the seeing, applies with equal force with regard to books for the blind.

The necessities of the blind in this respect have been and are urgent, and great efforts have been made to supply the want. But the Institutions for the Blind in or about which these efforts have generally originated, have been so widely separated in regard to time of origin and place of location, that there has been little or



no community of interest or of action. The result is, that there are no less than eight distinct kinds of alphabet and printing for the blind, each being advocated as having advantages over every other.

But if we may judge from the present condition of the art of reading amongst the blind, these alphabets, though produced by the most strenuous exertions and most praiseworthy zeal, have failed in their general utility and do not answer the purpose for which they were intended.

The reasons for this probably are, that the principles upon which an alphabet for the blind should be constructed, have not been sufficiently understood, and that the soundness of theories has not been properly ascertained by experiment.

Now, when anything is proposed to be done in behalf of any class of persons, it is evident that the capacities and necessities of the individuals in the class in question, will indicate the nature and scope of the action proposed.

So in the case of the blind, it is alone from a knowledge of the degree to which the sense of touch is possessed by them individually, that we may deduce the principles which should be applied in the construction of an alphabet for their general use.

It will now be our purpose, first, to notice those conditions and necessities of the blind, which indicate the necessary characteristics of an alphabet made for their use; and secondly, to examine the alphabets now in use with a view to determine their degree of conformity with these facts and conditions, and thus define the measure of their adaptability.

The first fact to be noticed is, that all the blind must read by touch, and hence the alphabet must be tangible or perceptible to the touch.

*Second.*—The sense of touch is not equally acute in all blind persons; the difference in this respect being great. This fact is of vital importance, for if the alphabet be such as only those having delicacy of touch can distinguish, then it is not an alphabet for the blind, but only for a preferred number of them. Hence the signs of an alphabet should be such as those in whom



this sense is least acute may recognize, or in other words such as all the blind may read.

*Third.*—It is a remarkable fact that nearly 80 per cent. of all the blind are adults and ineligible to school instruction. Most of them having learned to read when possessing sight, feel the loss of books most keenly. Being so large a majority of all the blind, their claim cannot be overlooked.

The second fact noticed is strongly exemplified in the cases of many of the adult blind, whose touch, through long disuse or hard labor has been seriously impaired. Upon the principle of the greatest good to the greatest number, an alphabet should be adapted to their use, so that any adult blind person may learn it without the aid of special school instruction.

The necessities of the blind require that the characters used in printing should be such as may be written, and so be used in keeping a record of business matters, and in re-producing music or text books for their use. Otherwise all the adult blind, supposing all to have learned the script alphabet of the seeing will have to learn two new Alphabets—one used in printing and the other for their own use in tangible writing, while all the young blind will have to learn three, viz: the script alphabet, used by the seeing; the alphabet used in printing books for the blind, and an alphabet for their own use in writing. Here, then, are four characteristics which an alphabet for the blind should possess.

*First.*—It must be tangible.

*Second.*—It must be perceptible to the touch of all the blind, to the least acute as well as to the nicest touch.

*Third.*—It must be such as may be easily learned by the adult blind, at their homes, without the aid of school instruction, (and if the second point be secured, this will follow.)

*Fourth.*—The printing and writing alphabet should be one and the same.

In addition to the above-named essentials, there are two other points of importance to be considered, namely: compactness, cheapness and

Having noticed these requisites of an alphabet for the use of

the blind, we proceed to construct one, and find four methods which may be followed.

*First.*—The Phonetic method, in which all of the sounds of the language are expressed by symbols or signs.

*Second.*—The Stenographic, in which whole words, abbreviations and terminations may be represented by signs.

*Third.*—The Alphabetic, in which the capital and lower-case letters of books for the seeing, or combinations and modifications of either or both are used.

*Fourth.*—An Arbitrary method, which shall be both Alphabetic and Stenographic in its construction and application.

Before proceeding with either of these methods we should determine what the Phonetic, Stenographic, Alphabetic or Arbitrary sign shall be, as the utility of the alphabet as a whole will depend upon the tangible power of the individual signs which compose it.

There are but three kinds of signs by which either of the systems can be applied.

*First.*—Those composed of either straight, curved, or broken lines.

*Second.*—Those composed of points or dot-like elevations.

*Third.*—Those composed of lines and points.

It will now be our purpose to demonstrate the real utility and value of the methods and signs named.

In pursuing the subject let us notice—

*First.*—The kinds of alphabets or systems of printing now in general use in the United States.

*Second.*—The practical value of these systems (and under this the tangibleness and cost of books printed in each, with their degree of availability to both young and adult blind).

*Third.*—The absolute and immediate necessity for a more tangible and cheaper system; and,

*Fourth.*—The nature and characteristics of a cheaper and more tangible system available to all classes of blind persons.

There are four systems of alphabets in use, namely:



*First.*—The Roman capital, otherwise known as the Glasgow or Philadelphia letter.

*Second.*—The angular lower-case or Boston letter.

*Third.*—The combined Roman capital and angular lower-case.

*Fourth.*—The point system in the form arranged by Braille, and known as the Braille alphabet.

The Roman capital system was introduced by Dr. Fry, of England, about the year 1834.

It was modified by Mr. Alston, of Glasgow, and finally adopted in 1837, when books were first printed in this type. It is strictly alphabetical, consisting of 26 letters, raised or embossed, which are identical in form with the Roman capital letters of books for the seeing.

It may be classed as an alphabetical line sign system.

The *second*, the angular lower case, or Boston letter, is also a modification of letters used by the seeing.

The lower case, or small letters, instead of the upper case or capital letters, were adopted as the basis, and modified by changing the curved lines to angular or broken lines.

This idea of abandoning the use of the capitals and of adopting an *angular* instead of a curved alphabet, in order to increase the tangible power of the letters, seems to have originated with Mr. James Gall, of Edinburgh, in 1826. The same idea was afterwards applied by Dr. S. G. Howe, of Boston, who, about the year 1835, originated an alphabet, differing in form from that of Mr. Gall, and much superior thereto, and which is now known as the Boston letter.

It may be classed as an alphabetical line sign system.

The *third* system is the combined alphabet, which is made up of the two before named.

In printing in the combined type, the letters of the first system are used for capitals, while the smaller letters are the same as those of the second system.

It may be classed as an alphabetical line sign system.

This combination of the Philadelphia and Boston alphabets originated with Mr. N. B. Kneass, of Philadelphia, and seems to



have been intended as a compromise between them, they having been rival systems since their introduction.

The first alphabets which were designed for the blind about 1795, combined the use of capitals with the small letters, but their use was discontinued about 1826.

We now come to notice the fourth, or point system, the particular arrangement of the points being that of M. Braille, of Paris.

It may be thus described: the letters are formed of raised points or dots, from one to six in number, made within the limits of a small rectangle, which is about two-thirds from right to left of the length from top to bottom. If the rectangle were filled it would contain six points, two at the top, two half way from top to bottom, and two at the bottom; but a letter composed of a single point requires as much space as one composed of six points.

The name of Braille is applied to this alphabet because of the method of combining the points suggested by M. Braille, which was to make the first ten letters of the alphabet consist of one, two or three points in certain positions.

Thus a first series was produced. By the addition to each of these letters of a single point in the lower left hand corner of the rectangle, a second series of ten letters is produced, and by the addition of a single point to each of the second series in the lower right hand corner, the third series is obtained.

Whether this method of developing an alphabet has any real or practical advantages which establishes the superiority of the Braille over any other system of point signs, will be shown.

The Braille may be classed as an alphabetical *point sign* system.

Having thus briefly described the alphabets in which books for the use of the Blind, which have been printed in the United States, we shall proceed with the second general topic which is the practical value of each of the four systems above described.

Each of these systems accomplishes, in a greater or less degree, the purpose for which it was originated, which is to enable blind people to read, and to supply text books and general literature for their use. Hence each system has a greater or less practical value.

Our purpose will be to compare and fix these values as defi-

nitely as possible. In doing this no theory will be advanced, facts alone will be presented, with such considerations as cannot be ignored in a fair analysis of the subject.

In determining the practical value of these systems, two points must be considered.

*First.*—Their tangibility, or the degree to which they are discoverable to the touch.

*Second.*—Their cost.

These points are stated in the order of their importance, for it is evident that any system of printing for the blind must be susceptible to the touch before it should either be printed or written. It is also apparent that it is only by means of printing, that text books or general literature for the blind may be supplied. Hence the expense of printing is an item of vital importance.

1st. Let us examine these systems with reference to their susceptibility to the touch. The four systems named may be arranged in two distinct classes, known as line sign and point sign systems.

The first three, the Boston angular lower case, the Glasgow or Philadelphia Roman capital, and the system made of those two combined, are line sign systems.

The fourth is a point sign system.

These three line sign alphabets are not in fact different systems, but are only different forms of the same idea, which idea is, that the shape of raised letters for the use of the blind, and which they can only perceive by the sense of touch, must be identical with, or similar to the shape of letters used by the seeing, and which they perceive by the sense of sight.

The forms in which this idea appears, are really but two. The Roman capital, in which both curved and angular lines are used, and the Boston angular lower case, in which angles and straight lines are mostly used, curved lines occurring less frequently.

Another distinction may be noted. In the Boston system the staff or stem line extends above the body of the letter, which is not the case in the Roman capital system.



The combined alphabet is made up of these two, with a few slight modifications.

It is then evident, that the comparative statement made in showing the value of each in regard to its tangibility, will also show the value of point signs as compared with line signs, and it is to this that special attention is directed.

Each of the four alphabets has been thoroughly tested, and the following statements show the result:

The results as given have been carefully prepared by each Institution, so that there is little likelihood that they are underrated.

*Table, showing the Number of Pupils in the several Institutions named, who can Read, and with what degree of facility.*

		Total.	No. of Readers.	Per Cent.	Read with Facility.	Per Cent.	Read Moderately well.	Per Cent.
<b>PENNSYLVANIA INSTITUTION:</b>								
No. of Male Pupils.....	99	..	..	..	28	..	14	..
" " Female " .....	77	176	92	52	32	34	18	18
<b>MICHIGAN INSTITUTION:</b>								
No. of Male Pupils.....	8	..	..	..	1	..	3	..
" " Female " .....	10	18	11	61	3	22	4	39
<b>INDIANA INSTITUTION:</b>								
No. of Male Pupils.....	44	..	..	..	17	..	7	..
" " Female " .....	50	94	58	61	21	40	13	21
<b>OHIO INSTITUTION:</b>								
No. of Male Pupils.....	84	..	..	..	27	..	15	..
" " Female " .....	68	152	94	62	37	42	15	20
<b>WISCONSIN INSTITUTION:</b>								
No. of Male Pupils.....	28	..	..	..	8	..	9	..
" " Female " .....	30	58	37	64	10	31	10	33
<b>NEW-YORK INSTITUTION:</b>								
No. of Male Pupils.....	65	..	..	..	10	..	35	..
" " Female " .....	70	135	91	68	16	20	30	48
<b>MARYLAND INSTITUTION:</b>								
No. of Male Pupils.....	16	..	..	..	9	..	5	..
" " Female " .....	15	31	27	86	6	48	7	38
Total.....		664	410	65	225	34	185	31



From this table, it appears that of 664 blind persons being instructed in seven institutions, only 225, or 34 per cent., can read *with facility*; and 185, or 28 per cent., could read *moderately well*. As a whole, this table shows a marked uniformity in the general results obtained in the several Institutions named. But as between the extremes, there is a marked difference, the lowest being 52 per cent. and the highest 86 per cent. This is in part explained upon the principle that a larger per cent. of the young blind can learn to read, than of the adult blind, and hence the greater the proportion of young pupils, the greater will be the number of readers. Thus the Maryland School is of recent origin, most of its pupils being young, while the Pennsylvania School is one of the oldest, and has a large number of adults learning trades.

Again it will be observed, that in every Institution except those of Michigan, Wisconsin and New-York, a greater number are said to read with facility than moderately well, while in these, the reverse is the case.

This probably arises from a difference of opinion as to the meaning of the terms "with facility" and "moderately well." In this Institution the standard is the same as in seeing schools. Reading with facility means, in short, reading with sufficient rate and proper emphasis. None of the qualities of good reading can be abated because of the absence of sight. Upon this standard, only those who do read with proper rate and emphasis should be called good readers; while those who read slowly, who give attention to the construction of *words*, rather than to their meaning when combined in phrases and sentences, and who, for this purpose, often stop to *spell*, should be classed as reading moderately well.

My experience has also shown that a small proportion ever learn to read well. The table shows that of 664 blind who receive school instruction, but 65 per cent. have learned to read at all, and if under the most *favorable conditions*, 35 per cent. fail to learn the alphabet of the Boston and Glasgow systems, it is plain that a large majority of *all* the blind, probably 70 per cent., can never enjoy the privilege of reading. It is a fact which every candid observer

must concede, that the systems of printing for the blind at present used in this country, do not meet the wants of the blind.

*The following Table shows the results of a limited trial of a Point System with Pupils who had been unable to learn the Boston Print :*

Males.	Age.	Time spent in studying Boston Print.	Date when Braille Alphabet was commenced.	Date when Pupil was able to read.	No. of Lessons.	Remarks.
1	23 yrs.	1 year.	Oct. 9	Oct. 22	8	Reads by rapid Spelling.
1	22 "	2 years.	Oct. 9	Oct. 22	8	" " "
1	16 "	4 months.	Oct. 9	Oct. 26	10	" " "
1	16 "	3 years.	Oct. 9	Nov. 5	16	Reads with moderate spelling.
1	18 "	2 "	Oct. 9	Nov. 14	25	Reads by spelling slowly.
1	17 "	5 "	Oct. 9	Nov. 19	30	" " "
1	16 "	2 "	Oct. 9	Nov. 9	16	" " "
Females.						
1	17 "	1 year.	Nov. 14	Dec. 19	5	" been blind less than 2 years.

Here, then, is conclusive proof that those who *cannot* learn either the Boston or Glasgow print, can learn the Point Alphabet. And it should be remarked, that while the ability to read those systems is lost by a short period of disuse, or by working at any business which hardens the cuticle of the fingers, such is not the case with the Point Alphabet. It can be read by any blind person of ordinary intellect, no matter what his business; nor how long the period of disuse. But it is urged against the point signs that they are arbitrary and unlike the signs used by the seeing. If this objection were valid, it is difficult to see why the blind should have many of the facilities they now enjoy, inasmuch as they differ from the means used by the seeing for the same object.

There is in reality no force in this objection, for it is illogical to say that a system made for the *blind* is defective, simply because it does not suit the *seeing*, nor conform to that which the seeing use for a like purpose. The necessities of the blind grow out of their condition, and the true value of anything made for their use is found in the fact that it is adapted to *their* condition and meets *their* necessities, regardless of other considerations. Doubtless this objection has grown out of the general principle that the blind should be as much like the seeing as possible. This is true of the *ends* or final *results*, but is nowise true of means used to produce results. Thus, all the seeing of schoolable age read, or at least



may if they will. Then, in order to be like the seeing, all the blind of schoolable age should be able to read. Now, which is the more important, that all the young blind should be able to read, thus being made, in fact, like the seeing, or that they should be taught an *alphabet which in some sort resembles* that used by the seeing, but by doing which only 34 per cent. of them will ever be able to read with any pleasure or profit? The answer of every blind person and of every practical educator is obvious.

The important point is, that the blind shall be like the seeing in what they *know* and *can do*, no matter whether the *means* of knowing or doing be the same as are used by the seeing or not.

But the point signs have other important advantages besides that of being easily learned at any time of life by any blind person. They can be used in writing music, keeping accounts and transcribing books; so that in one and the same system the blind can read and write, thus relieving the memory of heavy burdens and enabling them to grasp a far greater range of subjects, or to engage more deeply and successfully in any given study or pursuit.

Point signs, another great advantage, which is, that while they are used as letters, they can also be combined so as to represent whole words, abbreviations and terminations, thus combining the features of the stenographic and alphabetic systems. The short-hand signs could be used in the books and writing of those taught in schools for the blind, while books for adults could be printed in the common signs of the alphabet.

The above tables indicate very clearly the value of the line and point sign systems, and, as the facts are stated precisely as given by each of the Institutions named, it is natural to suppose that each will admit the correctness and importance of the conclusions to which they lead. Let us seek then to give in express terms the demonstrated values of these systems.

A system can only be reckoned as being of par value when it accomplishes 100 per cent. of the work designed for it, and when less than that is accomplished it has a depreciated value.

Hence, of the 664 blind persons included in table No. 1, every



one should be able to read with facility in order that the line sign systems tested may have a par value. But it is found that all do not read with facility. Hence a par value can be given only in as many cases as do read with facility.

Thus, of the 664 cases, 225 read with facility, and hence the system has a par value only in so many cases. But it is also seen that 185 persons read moderately well, and in each of these cases the system has a depreciated value.

Experience shows that 50 per cent. is the utmost that can be given in these cases, making them equal to half the number of good readers. Thus 185 poor readers at 50 per cent. equal 93 good readers at 100 per cent.

The case may then be stated as follows :

Number of good readers necessary to give a par value to the line sign system.....	664
Actual number at 100 per cent.....	225
Number of poor readers 185 at 50 per cent.....	93
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Whole number of cases in which the line signs have a par value.....	318 = 48 per cent.

Here it appears that of 664 cases the line sign system can be read with facility, and hence have a par value in only 318 cases, or 48 per cent., while it cannot be read and has no value in 346 cases, or 52 per cent.

In the same manner, the value of the point system may be found.

Thus, according to the second table, it appears that the number of cases included is 60.

Hence, to give a par value to this system, the number who must read with facility is.....	60
But the number of such readers is only.....	45
Number of poor readers 24 at 50 per cent.....	12
<hr/>	
Total number of cases in which there is a par value..	57 = 95 per cent.

Hence it appears that in 60 cases the point system can be read with facility, and hence has a par value in 57 cases, or 95 per

cent., while it cannot be read and has no value in 3 cases, or 5 per cent.

The third table shows only the result of a limited trial, but these results indicate very clearly which system has the greatest value; for it is a test of ability to read the point signs, in those who had, after long trial, proved themselves unable to read the line signs.

In every case success attended the effort, and it may be stated here that, within our knowledge, no blind person who has ever attempted to learn the point signs has failed, while we know as a fact that 35 per cent. of those receiving instruction in eight of the principal Institutions in this country, failed in learning to read the line signs.

From the foregoing considerations, the values of the point and line systems, in regard to their susceptibility to the touch, may be stated as follows:

Point Sign System.....	95 per cent.
Line Sign System.....	48 per cent.

The next point to be considered is the practical value of these systems, as shown by the cost of producing books therein.\*

Let us now compare the cost of printing in these systems.

The cost of books, in materials and in labor, will be in proportion to the size of the book. Hence the most condensed system will be the cheapest.

The space required in printing a given amount, as the Bible, in either the angular, the Roman capital, or the combined type, is about the same. The difference is slight, and probably in favor of the angular or Boston print, so that the comparison as to cost will be as between the line sign of the Boston print and the point sign of M. Braille.

Upon a comparison of these systems, the details of which

\* NOTE.—The facts shown in these tables were gathered in 1866, but subsequent experience here and elsewhere, justifies their accuracy. Mr. Thomas Little, Superintendent of the Wisconsin Institute, in his report for 1868, says:

“Throughout the year the Braille (point sign) system of writing was taught to a class of the older pupils. This had never been systematically done here before. Our experiment with this system gives satisfactory results, as regards writing both ordinary language and music. There were two in the class who had never succeeded in learning to read the other alphabets. Both of them succeeded reasonably well with this.”



would require too much space to be given here, it will be found that to print a given amount of English composition, the Braille requires nearly 33 per cent. more space than the Boston system. Hence it follows that it will cost 33 per cent. more to print books in the Braille than in the Boston system.

If the signs of M. Braille are superior to any line signs because they can be more readily perceived by the touch, and will reach a larger number of the blind, books for the blind should be printed in that system, even though the cost should be 33 per cent. greater.

But it so happens that when the cost of production is small, books will be plenty and cheap, and when the cost is great they will be scarce and dear.

Now, if the cost of books in the Boston type be small, an increase of 33 per cent. may be cheerfully assented to, because of the greater number of the blind who will be benefitted by incurring such additional expense.

But if the cost be great, then an increase of 33 per cent. might be so burdensome as to result in the total suspension of printing, or at least force us to adhere to the present ill-adapted but cheaper system.

What are the facts? Rev. Joseph Holdich, D. D., Secretary of the American Bible Society, in writing on the subject, says that every entire copy of the Bible in the raised print of the Boston signs actually costs \$32. In the Braille signs it would cost 33 per cent. more, equal to \$10.24, making the actual cost of one copy of the Bible in the Braille signs, \$42.24, and this includes only the cost of paper, press-work and binding.

Even the present cost of books for the blind is so great, that they exist more in name than in fact, and at the rate which the Braille system imposes, it is probable that they would soon cease to exist even in name.

We are thus driven to the conclusion, that neither of the systems named has the practical value or utility claimed for it, and that neither of them are constructed so as to suit the condition and meet the wants of the blind as a whole.



This brings us to notice the third topic, which is the absolute necessity for a more tangible, cheaper, and hence more useful system.

The necessity for some system which can be brought into more general use may be shown in two ways: first, by showing the systems now used to be ill adapted to the touch and impracticable because of their excessive cost; and, secondly, by showing how important it is that the blind should have books. The first having been done, we shall notice the second point only. In this matter the requirements of the blind are identical with the requirements of the seeing.

Blindness confers no advantages or powers by which the blind can dispense with any of the means for mental culture and improvement which are needed by the seeing.

Do seeing children need text books upon every subject, in order that their minds may be properly trained? So also do the blind. And how are the wants of the blind supplied? Of text books adapted to their use in schools there are *none*, and for this cause alone at least one-half the time which should be devoted to recitation must be devoted to *learning the lesson from the teacher in the class-room*, which is not the place for preparation, but the place to which the pupil should bring, for practical application under the correcting and controlling hand of the teacher, the results of study and personal application made beforehand.

Every pupil should have the double character of the *learner* and the *taught*, and he cannot receive the full benefit of his daily privileges as the *taught* unless he has done his preparatory work as a *learner*.

But the blind have no text books, which can be generally used in their schools, and hence they have not the means by which to make that self effort which is the most important element in the discipline of the mind.

The seeing scholar is accustomed to learn his lessons by his own endeavor.

He is required by the daily study of his books and by the discipline of the recitation room to bring all his faculties into exercise, and is taught not only how to learn, but how to apply.

His habits of study soon develop a consciousness of self-ability, and a power to take of the means with which a kind Providence has surrounded him, and make them administer to the comfort and prosperity of himself and others.

And how is it with the blind scholar?

There being no text books out of which he may prepare his lessons for recitation, recourse must be had to oral instruction.

Now oral instruction, without text book auxiliaries, will be likely to fall short of the object sought to be gained by it, because it makes the pupil dependent upon the teacher for his knowledge upon every subject. It permits no daily and systematic assignment to each pupil of a task, and hence we lose the chief means by which the pupil is to make the daily personal effort essential to the proper growth and discipline of his mind.

Thus in daily and hourly practice, the very system by which we are to develop in the pupil a sense of indwelling powers, and by which also we are to educate him to exercise these powers, and thus relieve him of the feeling of dependence which blindness imposes, serves to deepen the conviction so commonly manifested, that he can make no effort except as others direct, and that he cannot advance except as others lead.

It is the office of the text-book to furnish facts and principals; the office of the task to impart intellectual power, through the effort to acquire knowledge by personal labor; while the classroom is the place in which the learner may show the results of his labor, and learn how to apply his knowledge to practical purposes. The text-book and the task are indispensable to an economical use of time, and to thoroughness of mental discipline.

But, although we have two or three systems in which to print books for the blind—while there are, at least, two Institutions which for the past thirty years have had abundant facilities for publishing all the books of a secular character which have been needed, and while the American Bible Society has been ready to furnish all the Bibles required—still the complaint has been, and is, We have no books! And why is it so? Simply because the present systems do not meet the requirements of those who create the demand.





If either of these systems were so adapted that every one of the one thousand blind youth in the Institutions of this country could learn to read and write it readily and retain it easily, there would be a demand for books which could not be denied ; and they would be provided in number and variety to meet the demand regardless of cost. But they are not well adapted ; they are very expensive, and against these two disadvantages it is useless to contend.

Thirty-five years have passed since the work of educating the blind was commenced in the United States ; and while great improvement has been made, both in the means and in the methods of instruction, in regard to books for the young and adult blind of our land—some fifteen thousand in number,—we stand just where we were at the beginning.

This brings us to the fourth topic, which is the nature and characteristics of a cheaper and more tangible system, suitable to all classes of blind persons.

Now, as we are to provide an alphabet for persons who read by touch and not by sight, it is clear that the sign which should be used is that which can be most easily distinguished by the touch. But what that sign is which the touch may most readily perceive, can only be determined by experiment. Unquestionably experience has shown the *point sign* to be superior to all others.

We shall, therefore, accept it and inquire what position the sign should have upon the page. It has been found that within the limits of a rectangle, the width of which is to its length, as 2 to 3, six points may be made, the many combinations of which supply all the signs needed.

It is evident that this rectangle, which in print will be the face of the type, may be used in two ways, thus , with the longest dimensions from top to bottom, or thus , from right to left.

The type, when placed in the horizontal position will take less room than when used in the vertical position ; for, in the vertical position, the same space must be taken for a letter whether it consists of one point or six. Thus, in the vertical position, the first letter of a word may be a single point at the top, while the second



may consist of six points, and yet the space required for the one point sign will be just as great as that required for the six point sign, and thus much space be lost. But if the type be placed horizontally, its size may be made to correspond with the number of points upon it.

Hence, whether we have two, four or six points, from right to left, the type need only be large enough to contain them, and thus this space may be saved. The Braille system uses the vertical position, and the result is that it requires one-third more space than the Boston system, and when compared with a point alphabet of the horizontal plan, it appears to even greater disadvantage.

Having settled that the sign should consist of points, and that the type should contain but two points from top to bottom, and as many from right to left, as each sign may require, our next inquiry is: How shall the points be combined in constructing the signs? What order, if any, shall be followed?

Three modes of procedure are open to us.

1st. Twenty-six arbitrary and independent signs may be formed, no one depending on or growing out of another.

2d. We may construct a given number, say the first ten letters, arbitrarily, and then by adding a single point to each of them, produce the second series of ten, and by adding a point to each of these, produce the third series of ten letters or signs. This is the plan of M. Braille, and has no practical advantages. The simple fact that the first ten signs are a key to all the others, in no measure compensates for the fact that books in this system cost one-third more than in the Boston type, and are one-third more unwieldy.

3. Recognizing the fact that in the English language, as in all others, certain letters and sounds occur more frequently than other letters and sounds, we may construct a system of signs upon the principle that the letters or sounds which occur most frequently, shall consist of the smallest number of points upon the smallest type, while those which occur less frequently shall have the greatest number of points upon the largest type. Thus far it seems clear, that in a new and better system than any now in use, three things are essential.

1st. The signs or letters used must consist of points, because of their superior tangibility.

2d. The two line, or horizontal sign, instead of the three line, vertical sign, must be used in order to condense the books.

3d. The size of each sign, and the number of points which compose it, must depend on the number of times it will occur in English composition.

But it now appears that in pursuing the plan above indicated, four systems may be formed.

1st. An Alphabetical system consisting of twenty-six letters.

2d. An Alphabetical system with some signs for words in common use.

3d. A purely Phonetic system in which each sound of the English language shall be represented by a sign, making a phonetic alphabet of forty-two signs.

4th. A partly Phonetic and partly stenographic system, in which all the sounds shall be represented, except in words very frequently used, and which may be represented by a sign.

The comparative advantages of these systems can only be known by applying them in practice.

In making a trial of these systems, the same given amount of composition should be printed in each, and the following results carefully noted :

*The number of signs and the space required by each system.* Care should be taken in the selection of a test composition—for some writers abound in monosyllables, some use chiefly words of Anglo-Saxon; some, words of Latin, and others, words of mixed derivation.

So, also, each science has words and forms of expression peculiarly its own; and this is true of every subject. Art, science, trade, politics, morals—each has its vocabulary, and hence we must make a selection, for trial, which will fairly represent the language in general.

The selections made, in this case, are as follows: From the Bible, in the books of Genesis, Exodus, Deuteronomy, Chronicles, Psalms, St. Matthew, St. Mark, St. John, Romans, Corinthians and Galatians; from Goldsmith, Macaulay, Cowper, Gray, Irving,



Beecher, T. B. Read, Bryant, Hugh Miller and O. M. Mitchell. The number of letters in these selections is 30,828. Of this number, each of the twenty-six letters of the alphabet has its known proportion. The selections have been carefully phonetized, and the number of sounds which occur is 25,651, or 16.7 per cent. less than the number of letters. As before stated, it will be impossible to give the operations by which, in each case, the results are found. Suffice it to say, that, having found the number of letters and the number of sounds in the examples selected, we are ready to apply any system. If the Alphabetic or Phonetic, we must first find the number of times each of the twenty-six letters, or forty-two sounds, occurs in the whole composition. Having done this, we construct the twenty-six, or forty-two signs accordingly. Then, in order to compare the space which each system will require, we may suppose the selections to be printed in a single line in each system. A comparison of the lengths of the lines will show which requires the least space.

If the position of a single sign be changed, or a word-sign introduced, an entirely new arrangement must be made.

The following is a concise statement of the results:

The Boston system will be considered the standard, and the space required to print the given selections of 30,828 letters will be indicated as 100 per cent.

To print the same in the Braille system will require 33 per cent. more space, equal to 133 per cent.

In a horizontal point system of twenty-six letters the same may be printed in 5 per cent. less than in the Boston. This difference being so slight, it may be called 100 per cent., which is the same as the Boston.

Space required by a phonetic horizontal system of forty-two point signs, 90 per cent.

Space required by a horizontal point system composed of twenty-six letters, with *ten word and part word signs* added, 91 per cent.

Space required by a horizontal point system of thirty signs, to be used phonetically by means of four modifiers, each of which



by supposition shall not exceed a given size, and which will indicate the various sounds any sign may have, with five word and part word signs, making, in all, thirty-five signs, 70 per cent

The order in which these systems stand, in regard to space or cost, is as follows :

1st	The Boston, or standard of comparison-----	100	per cent.
2d.	Braille vertical point system (26 signs)-----	133	“
3d.	Horizontal point system (26 signs)-----	100	“
4th.	Horizontal point system of 26 letters and 10 word signs-----	91	“
5th.	Horizontal point system of 42 phonetic signs--	90	“
6th.	Horizontal point system of 30 modified phonetic and 5 word and part word signs-----	70	“

Having thus indicated some of the principles to be followed in the construction of a more tangible and cheaper system, and systems which may be written as well as read by the blind, it remains to reduce them to practice before a definite alphabet or system of signs can be decided upon.

Otherwise, the error of devising an alphabet upon mere hypothesis, and trying to adapt the blind to it, instead of adapting an alphabet to the blind, will surely be repeated.

Thorough experiment has been made with each of the modes named; the results of which will be briefly noted, taking them in the following order :

1st.—The Horizontal Point System, of 30 modified phonetic, and 5 word and part word signs.

2nd.—The Horizontal Point System of 42 phonetic signs.

3rd.—The Horizontal Point System, of 26 letters and 10 word and part word signs.

The Horizontal System of 26 letters only, has all of the advantages of the last named, except that it is not so compact.

And First, of the modified phonetic system, it is clear that in theory this is the most compact of all the systems named.

But this depends upon the supposition, that the modifiers used shall not exceed a given sign.

Thus the sign · may be used to represent the sound of *a*, as in *make*. But it also has four other sounds, as heard in *bar*, *ball*,

*at* and *dare*, and the system supposes that these last four sounds of *a*, shall be indicated by the single point used to indicate the first sound; with a modifier placed before it, thus — . Now as the fundamental sign is a point, the modifier must of necessity be a line. We then have the five sounds of *a*, indicated thus: . *a* as in *make*, | · *a* as in *bar*, — · *a* as in *ball*, ⊥ · *a* as in *at*, and ⊞ · *a* as in *dare*.

All the letters which have but one sound, will be represented by a point sign, without any modifier, while those which have two or more sounds, will have a modifier to indicate the sound.

Experiment however proves, that the modifier must be so lengthened in order to become easily susceptible to the touch; that not only is there no saving in space, but the space required is actually greater than would be required in the Phonetic system of 42 signs, and thus in practice we find that the theory which promises a gain of 30 per cent. over the Boston system, becomes utterly worthless when we attempt to apply it. Let us now make practical application of the Phonetic System of 42 signs.

As there are at least forty-two sounds, used in speaking the English Language, it is evident that each sound must be represented by a sign. Hence there will be forty-two signs. As the sounds do not occur with like frequency, those which occur most often, should be represented by the simplest and smallest signs. Reducing the plan to practice, it will be found that while it has all the tangible power of any other horizontal point system, there is a gain of only 10 per cent. in space over the Boston system, which is but 1 per cent. more than is gained by the system of 26 letters and 10 word and part word signs.

In securing these forty-two signs it is necessary to make some of them four points long from right to left, which is objectionable, as a sign four points long cannot be well covered by the finger.

To introduce the phonetic system would also require that all printing and writing should be done without the use of any silent letters, which would greatly confuse the blind scholars as to the usual spelling of words. These objections entirely offset the small gain of 10 per cent. made by this system, and we must pronounce it impracticable.



We now come to notice the system of 26 letters and ten word and part word signs. This consists of horizontal two line letters, so called, 1st, because the letters require but two points from top to bottom, instead of three, as in the Braille's; and 2nd, because the letters increase in size from left to right or horizontally—the size of each letter being determined by the number of times that it occurs in composition. The course pursued in testing this system was as follows. A series of seven reading lessons was prepared in the following manner:

The first lesson consisted of the first eight letters of the alphabet, with such words as could be spelled by the use of *these* letters only.

The words thus formed were combined in sentences.

The second, third and fourth lessons, each consisted of six letters taken in order, with words spelled first of the letters of the lesson, and then of the letters of the lesson combined with all the letters of the preceding lessons. The words so contained in each lesson were then combined in short sentences.

The fifth lesson consisted of the four word signs *and*, *the*, *of*, *that*, and the termination *ing*, with sentences composed of words occurring in the lessons and introducing the word signs as often as possible.

The sixth lesson consisted of the five part word signs, viz.: *ch*, *ou*, *sh*, *wh* and *th*, with words introducing them, followed by sentences combining the letters and signs of all the lessons.

The seventh lesson consisted of a fable—"The Hare and the Tortoise."

These lessons were equal to about 10 printed pages of the Blind Child's Third Reader, in Boston type.

The following is a tabular statement of the results of teaching this system to the pupils of the New-York Institution for the Blind. It embraces eleven periods of study, each forty-four minutes long; the remaining part of the hour being taken up in the distribution of the lessons. No pupil was allowed to study a new lesson at any other time, and only those who had satisfactorily completed a lesson were permitted to retain it from day to day. The entire school, including all pupils, was required to study the system.



*Table Showing the Number who Completed the Six Lessons at the Specified Time.*

DATE.	Males.	Females.	Total.
1st day, June 8th.....	1	—	1
2nd “ “ 9th.....	16	—	16
3rd “ “ 10th.....	25	14	39
4th “ “ 11th.....	36	14	50
5th “ “ 12th.....	42	28	70
9th “ “ 19th.....	42	47	89
11th “ “ 23rd.....	59	61	120

At the last date the number examined was 133.

On the ninth day the 7th Lesson, the fable of "The Hare and the Tortoise," which was nearly twice the length of either of the former lessons, was for the first time given to the 89 pupils who had completed the six lessons, and of this number 46 read it the first day.

The following are the signs used :

a	b	c	d	e	f	g	h	i
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
j	k	l	m	n	o	p	q	r
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
s	t	u	v	w	x	y	z	
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.

The word signs are:   and;       the;       of;       that;     ing.  
                        . .              . .              . .       . .              . .  
                        . .              . .              . .       . .              . .

The part word signs are: ch; ou; sh; th; wh.

The following are the signs for number:

[illegible]

# OUR LORD'S PRAYER.

Our Father, who art in Heaven,  
Hallowed be thy Name,  
Thy Kingdom come,  
Thy will be done,  
as in Heaven, so on Earth.  
Give us this day our daily bread,  
And forgive us our debts,  
as we forgive our debtors,  
And lead us not into temptation,  
but deliver us from the evil one.  
For thine is the Kingdom,  
the power, and the glory,  
forever. Amen.

Table showing the Number who had Completed any of the Lessons at specified times

	Table.	Sixth Lesson.	Fifth Lesson.	Fourth Lesson.	Third Lesson.	Second Lesson.	First Lesson.	No Lesson.	Total.
1ST DAY—June 8th :									
Males.....	...	...	...	8	16	13	14	7	58
Females.....	...	...	...	...	2	20	24	17	63
Total.....	...	...	...	8	18	33	38	24	121
5TH DAY—June 12th :									
Males.....	...	42	3	9	5	1	3	4	67
Females.....	...	28	8	11	7	4	2	5	65
Total.....	...	70	11	20	12	5	5	9	132
11TH DAY—June 23d :									
Males.....	47	59	...	1	1	2	1	2	66
Females.....	42	61	...	...	...	2	...	4	67
Total.....	89	120	...	1	1	4	1	6	133

Of the six cases who failed to learn the first lesson, two had been in the school but a few days, two had not been sufficiently accustomed to study to enable them to perform their task, and two failed through indolence.

The signs were entirely new to the pupils, no one having any previous knowledge concerning them.

Such results achieved in so short a time, prove most conclusively, the adaptability of the system to the capacity of all the blind, and it is believed that any blind person possessing an ordinary intellect, no matter what the age may be, can learn to both read and write this system in a few lessons. The advantages of the system may be stated as follows:

1st.—It is susceptible to the touch of all the blind.

2nd.—It requires 50 per cent. less space in writing or printing a given amount than the Braille point system, and 9 per cent. less than the Boston letter, and it is quite probable that this may be increased to from 15 to 20 per cent.

3rd.—It may be written by the blind.

4th.—It may be used in both printing and writing music, for the use of the blind.



Experiment shows, that in tangible writing by means of point signs, punctuation marks are not necessary; the separation of phrases or sentences being indicated by a blank space. Signs of punctuation, composed of either lines or points can be used. If the latter are used the signs must be four points long, inasmuch as all the signs which can be made by the use of three points in length, have been taken up by the alphabet and word signs. This would require more space than ought to be taken for this purpose. The use of point signs in punctuating, would also be confusing, owing to the similarity between the sign for pauses and the signs for letters. Lines in length not exceeding the space taken by three points, would be much more readily apprehended, as a line could never be mistaken for a part of a word. But as punctuation marks are not used by the blind in tangible writing, it is doubtful whether they are necessary in printed books.

The structure, relative position, and office of words, phrases, and sentences, combine to show the reader how the subject matter should be read; and he will apprehend how to read far more from these considerations, than from any attention he can give to the marks of punctuation.

But should signs for punctuation be found useful in printing, the following may be used:

, -            § -            : T            . =  
 ? \            ! /            ( ) < >

To make this system complete in its application to the instruction and use of the blind, it only remains to establish a system of writing and printing music for the blind, which will be done as soon as circumstances permit.

The foregoing facts have been obtained by the most careful and unbiased investigation, in which very valuable aid has been rendered by the teachers and others connected with this Institution, and more especially by Mr. Stephen Babcock, principal

teacher, whose long experience and personal knowledge of the requirements of the blind have enabled him to give most important assistance.

The subject is submitted with the earnest hope that it will receive that attention from those interested in the education of the blind, which its importance demands.

Respectfully submitted,

WM. B. WAIT,

*Superintendent.*

*December 31, 1868.*





# LIST OF PUPILS.

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## MALES.

ANDERSON, WILLIAM,  
ANGEL, CHARLES,  
ABBOTT, JAMES.

BROWN, EDWARD A.,  
BERKINS, PETER J.,  
BUTLER, JAMES A.,  
BENNETT, FREDERICK,  
BENNETT, JAMES R.,  
BERGEN, JOHN,  
BORDEN, JOSEPH.

CROSBY, MILES,  
CONNELLY, GORDON H.,  
CONNELLY, JOHN MILTON,  
CREAMER, CHARLES,  
CARROLL, JOHN,  
CARROLL, THOMAS,  
CLARK, WILLIAM,  
CREHAN, DENNIS.

DAGNER, THOMAS C.,  
DUGANNE, CORNELIUS,  
DOHERTY, WM. F.,

ESTES, HERBERT,  
EADIE, ARCHIBALD,  
ELTON, GEORGE G.

FLEMING, JOHN,  
FOGGIN, EDWARD,  
FAIRBANKS. G. W.

GRAHAM, EDGAR.

HAMMOND, GEORGE M.,  
HOPPER, REUBEN,  
HERRING, ISAAC B.,  
HANNAMAN, CHARLES.

## FEMALES.

ABBOTT, EMMA.

BEAR, HARRIET,  
BRADLEY, SARAH L.,  
BATES, HARRIET,  
BODERO MARY,  
BUNKER, MARY,  
BENNETT, JANE,  
BARRETT, ELIZABETH,  
BULLOCK, CARRIE E.

COLLINS, CECILIA,  
CUNNINGHAM, M. J.,  
COMMERON, MELISSA,  
CARLL, JANTHE,  
CREAMER, MARY,  
CONNELLY, ESTHER,  
CONROY, MARY,  
CONDERON, ELIZA,  
CASSIDY, MARY,  
CONNELLY, BRIDGET.

DIXON, ANNA,  
DURLING, FRANCES, C.,  
DUFFY, ANNA,  
DUNN, MARY J.,  
DICKIE, MARY, L.,  
DOMBEY, EDITH,  
DE BACHE, A. M. E.,  
DOLAN, DELIA,  
DONOVAN, HONORA,  
DIAMOND, ELIZABETH,  
DRINGELAS, ROSA.

FORSYTH, MARY,  
FINNEGAN, VIRGINIA,  
FANEL, SUSAN.



## M A L E S .

KEISER, CHARLES,  
KINGSLAND, CORNELIUS.

LEWIS, LOUIS K.,  
LA FORGE, THEODORE,  
LETSCH, JOHN,  
LEIGH, GEORGE,  
LANIGAN, DANIEL.

MAHONY, JOHN,  
McCULLEN, THOMAS,  
McCLINTOCK, DANIEL,  
McNEILL, MICHAEL,  
MORRISON, ARTHUR,  
MUSSEHL, RUDOLPH,  
McNAMEE, JOHN,  
MORRIS, JOHN,  
MALONE, MICHAEL,  
MARUM, EDWARD,  
McINTIRE, BERNARD,  
MAYRES, THEODORE,  
MULLALY, WALTER J.,  
McAULIFFE, MICHAEL,  
MYERHAFFER, AUGUSTUS,  
MAXWELL, WM. H.

NOONES, THEODORE.

OSTERHELD, FREDERICK,  
O'BRIEN, HENRY,  
O'BRIEN, JAMES,  
OATMAN, OSCAR,  
O'BRIEN, JAMES.

PRICE, DAVID,  
PORAT, OSCAR M.,  
POWERS, DAVID.

ROACH, JOHN H.,  
ROACH, GARRETT,  
ROSS, EDWARD P.,  
RUTH, JOHN,  
REARDON, MORRIS,  
RICE, FRANK.

STAFFORD, CHARLES H.,  
STODDARD, CHARLES,  
SHOURDS, SAMUEL,

## F E M A L E S .

GREEN, ELIZABETH,  
GEORGE, HARRIET,  
GRAUTIGAN, CAROLINE,  
GRIFFIN, MARY,  
GASSNER, LETTY S.

HANLEY, MARY,  
HYDORN, JOSEPHINE.

HOSIER, ELIZABETH B.,  
HALL, ELIZABETH,  
HORNE, ANNA,  
HOAR, MARY ANN,  
HORTON, SUSAN E.,  
HALPIN, MAGGIE,  
HURLY, MARY E.,  
HAAG, CAROLINE.

JUSTIN, LOUISA.

KAUFMAN, MARY.

LENT, EMMA,  
LUDLOW, MARGARET,  
LANSLEY, HARRIET,  
LAMBERT, AMELIA,  
LIVINGSTON, SARAH,  
LYNCH, ANN.

McQUADE, ELIZA,  
MOORE, ANN,  
MORAN, BRIDGET,  
McPARTLAN, ROSANNA,  
MAGATHAN, SARAH, J.  
McGEE, ELIZABETH,  
MURRAY, MARY,  
McINTEE ANN.

NEVINS, ANNIE,  
NORTON, MARY.

POWELL, IDA A.,  
PENNY, MARY J.,  
PFAP, MARGARET,  
PORAT, BERNADINA.

## M A L E S .

SMITH, MULFORD,  
 STACY, CHARLES E.,  
 STILWELL, SAMUEL,  
 SEAMAN, THEODORE D.,  
 SEAMAN, WM. H.,  
 SCHNEIDERMAN, JOHN.  
 TURNER, WALTER,  
 TIMPSON, EDWARD C.,  
 TRENT, EDWARD.

UPTON, JESSE.

VANDERPOEL, SAMUEL.

WILLS, GEORGE,  
 WAGER, JOHN J.,  
 WARREN, FRANCIS,  
 WYANT, WILLIAM,  
 WELSH, JAMES,  
 WILSON, JOHN,  
 WEST, THOMAS.

## F E M A L E S .

ROBERTS, ELIZABETH S.,  
 RYAN, ANN,  
 RILEY, EMMA.

SCHALEN, ANNA,  
 STROMMINGER, CAROLINE,  
 SULLIVAN, ANNIE,  
 STUART, EMMA,  
 SAUNK, ELIZABETH.

TOUHEY, MARY J.,  
 THOMPSON, MARY J.

WASHBURN, CAROLINE,  
 WENDOVER, RACHEL,  
 WEBB, SOPHIA A.,  
 WARD, EMMA L.,  
 WING, MARY,  
 WOLF, AUGUSTA,  
 WISER, ROSA.

